

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior listing of claims:

Listing of Claims:

Claim 1 (currently amended). An optical bridge for transmitting light between pairs of optically active areas, each pair of optically active areas including a first optically active area on a first optical component and a second optically active area on a second optical component in opposed spaced apart relationship to said first optical component, comprising:

one or more waveguides each extending between a corresponding pair of optically active areas,

where each of said one or more waveguides has an outer surface between said corresponding pair of optically active areas, and where the cross-section of said outer surface in a plane between said corresponding pair of optically active areas is concave, and where each of said one or more waveguides has a smaller diameter near its center than at at least one end thereof.

Claim 2 (original). The optical bridge of claim 1, wherein said one or more waveguides is comprises an optical polymer formed from an optical liquid.

Claim 3 (original). The optical bridge of claim 2, wherein said optical polymer is curable epoxy or gel.

Claim 4 (original). The optical bridge of claim 1, wherein said first optical component and said second optical component are approximately parallel and said separated by a distance of from approximately 10 μm to approximately 1000 μm .

Claim 5 (original). The optical bridge of claim 2, further comprising a wetting surface capable of wetting said optical liquid and on at least one optically active area of said corresponding pair of optically active areas, where said wetting surface is surrounded by a non-wetting surface of said optical liquid.

Claim 6 (original). The optical bridge of claim 2, further comprising a non-wetting surface

capable of not wetting said optical liquid surrounding at least one optically active area of said corresponding pair of optically active areas.

Claim 7 (original). The optical bridge of claim 1, wherein at least one of said one or more waveguides has, at said first optically active area, approximately the same boundary as said first optically active area, and has, at said second optically active area, approximately the same boundary as said second optically active area.

Claim 8 (original). The optical bridge of claim 1, wherein one of the pair of optically active areas is a transmitting area and wherein the other of the pair of optically active areas is a receiving area, wherein said transmitting transmits light from said transmitting area to said receiving area, wherein said waveguide at said transmitting area has approximately the same boundary or a larger boundary than said transmitting area, and wherein said waveguide at said receiving area has approximately the same boundary as said receiving area.

Claim 9 (original). The optical bridge of claim 1, wherein said first optical component is an optical circuit board.

Claim 10 (original). The optical bridge of claim 9, wherein said first optical component is a waveguide daughter board.

Claim 11 (original). The optical bridge of claim 1, wherein said second optical component includes a photodiode array.

Claim 12 (original). The optical bridge of claim 1, wherein said second optical component includes a vertical cavity surface emitting laser.

Claim 13 (original). The optical bridge of claim 9, wherein said optical circuit board includes a waveguide core within said first optical component and wherein said waveguide includes a portion between the surface of said first optical component and said waveguide core.

Claim 14 (currently amended). An apparatus for optically communicating through one or more optically active areas of an optical component, comprising:

an optical circuit board having ~~and~~ a surface comprising at least one optically active area;
and

one or more optical bridges each including a waveguide each extending between a pair of optically active areas, wherein one of said pair of optically active areas is an optically active area of said optical component and wherein the other of said pair of optically active areas is a corresponding optically active area of said optical circuit board, wherein each of said one or more waveguides has an outer surface between said corresponding pair of optically active areas, and where the cross-section of said outer surface in a plane between said pair of optically active areas is concave, and where each of said one or more waveguides has a smaller diameter near its center than at at least one end thereof.

Claim 15 (original). The apparatus for optically communicating of claim 14, wherein said one or more waveguides is an optical polymer formed from an optical liquid.

Claim 16 (original). The apparatus for optically communicating of claim 15, wherein said optical liquid is curable epoxy or gel.

Claim 17 (original). The apparatus for optically communicating of claim 14, wherein said optical circuit board and said optical component are approximately parallel and said separated by a distance of from approximately 10 μm to approximately 1000 μm .

Claim 18 (original). The apparatus for optically communicating of claim 15, further comprising a wetting surface capable of wetting said optical liquid and on at least one optically active area of said pair of optically active areas, where said wetting surface is surrounded by a non-wetting surface of said optical liquid.

Claim 19 (original). The apparatus for optically communicating of claim 15, further comprising a non-wetting surface capable of not wetting said optical liquid and surrounding at least one optically active area of said pair of optically active areas.

Claim 20 (original). The apparatus for optically communicating of claim 14, wherein at least one of said one or more waveguides has, at said first optically active area, approximately the same boundary as said first optically active area, and has, at said second optically active area, approximately the same boundary as said second optically active area.

Claim 21 (original). The apparatus for optically communicating of claim 14, wherein one of the pair of optically active areas is a transmitting area and wherein the other of the pair of optically active areas is a receiving area, wherein said transmitting transmits light from said transmitting area to said receiving area, wherein said waveguide at said transmitting area has approximately the same boundary or a larger boundary than said transmitting area, and wherein said waveguide at said receiving area has approximately the same boundary as said receiving area.

Claim 22 (original). The apparatus for optically communicating of claim 14, wherein said optical circuit board is a waveguide daughter board.

Claim 23 (original). The apparatus for optically communicating of claim 14, wherein said optical component includes a photodiode array.

Claim 24 (original). The apparatus for optically communicating of claim 14, wherein said optical component includes a vertical cavity surface emitting laser.

Claim 25 (original). The apparatus for optically communicating of claim 14, wherein said optical circuit board includes a waveguide core and wherein said waveguide includes a portion between the surface of said optical circuit board and said waveguide core.

Claims 26 – 34 (cancelled).

Claim 35 (new). The optical bridge of claim 1, wherein said first optical component is mounted on a first substrate and said second optical component is mounted on a second substrate.

Claim 36 (new). The optical bridge of claim 35 further comprising a plurality of solder bumps connecting said first and second substrates.